

IN THE CLAIMS

Please amend claims 1, 6, 8, 9, 12, 14, 16, 18-22, 24, and 29 as follows:

1. (Currently Amended) A recording apparatus, comprising:
 - (a) a at least one recording medium, having a plurality of potential respective different dichroic anisotropic optical properties domains; and
 - (b) means for a physical transfer mechanism, adapted for selectively physically transferring a portion portions of said recording medium to a carrier in a selective pattern defined by an input, said transferred portions having said respective different dichroic properties after being transferred~~wherein a bulk portion of said recording medium has macroscopically detectable anisotropic optical properties,~~
whereby a dichroic pattern of transferred recording medium material in a pattern defined by the input is provided on the carrier.
2. (Original) The recording apparatus according to claim 1, wherein said recording medium comprises a polymer having crystalline properties, wherein a crystalline domain of said polymer recording medium has anisotropic properties.
3. (Original) The recording apparatus according to claim 1, wherein at least two recording media are provided, each having distinct anisotropic properties, wherein said transferring means selects from available recording media to control an anisotropic recording pattern.
4. (Original) The recording apparatus according to claim 1, wherein the recording medium is transferred in a pattern defined by a cipher.
5. (Original) The recording apparatus according to claim 4, wherein a message is encoded on said carrier comprising a self-authenticating description of said pattern.
6. (Currently Amended) The recording apparatus according to claim 3, wherein the pattern comprises a ~~sparse~~ distribution of ~~recording medium~~ on the carrier.

7. (Original) The recording apparatus according to claim 1, wherein the recording medium comprises a fluorescent dye composition.

8. (Currently Amended) A recording medium, comprising a polymer transfer portion ~~film~~ having adhered thereto a transfer layer having a potential predefined anisotropic dichroic optical property, the recording medium being adapted to selectively physically transfer portions thereof ~~the layer~~ to a ~~recording medium under influence of a print head~~ carrier with the predefined dichroic optical property.

9. (Currently Amended) A recording method, comprising the steps of:

(a) providing a at least one recording medium, having a plurality of different potential predefined dichroic properties ~~anisotropic optical domains~~; and

(b) transferring a ~~portion~~ portions of the recording medium having at least two of the potential predefined dichroic properties to a carrier to obtain a carrier having transferred portions having at least two different dichroic properties thereon, ~~wherein a bulk portion of the recording medium has macroscopically detectable anisotropic optical properties~~.

10. (Original) The method according to claim 9, further comprising the step of accounting for said transferring step in an accounting database.

11. (Original) The method according to claim 9, further comprising the steps of: (a) defining a pattern of recording media on the carrier; (b) authenticating the carrier based on a correspondence of a subsequently detected pattern to the defined pattern; and (c) accounting for said authenticating step in an accounting database.

12. (Currently Amended) An imprinted carrier, produced by a method comprising the steps of: (a) providing a recording medium, having a plurality of different potential predefined dichroic properties ~~anisotropic optical domains~~; and (b) transferring a ~~portion~~ plurality of portions of the recording medium having respectively different of said potential predefined dichroic properties to a carrier to obtain a carrier having a plurality of portions having

respectively different predefined dichroic properties, wherein a bulk portion of the recording medium has macroscopically detectable anisotropic optical properties.

13. (Original) The carrier according to Claim 12, wherein said carrier is associated with an object, wherein a message identifying the object is imprinted on the carrier.

14. (Currently Amended) An authentication device, comprising:

(a) an at least one illumination source system having an a narrowband output adapted for exciting fluorescence exciting dichroic properties of an optically active material and differentiating between respectively different dichroic properties of the optically active material, having a plurality time-varying states;

(b) a time-varying polarizer;

(c) an optical filter to exclude the narrowband output;

(d) an a spatial imaging optical imaging sensor, sensitive to light from said illumination system, but not directly sensitive to distinguish the dichroic properties under unpolarized white light illumination, operated to acquire images under a plurality of said plurality of time-varying states, to differentiate a spatial pattern of dichroic properties of the optically active material and further detect a non-dichroic image pattern; and

(e)(d) a processor, receiving an output of said spatial imaging optical sensor under said plurality of time-varying states, determining the non-dichroic image pattern, analyzing said output to selectively determine the spatial pattern of dichroic properties for performing a digital background subtraction under a plurality of polarizer conditions, for extracting dichroic elements sensed by the optical imaging sensor, and for authenticating a medium having a predetermined pattern of dichroic elements based on a correspondence of a sensed dichroic element pattern and a the predetermined dichroic element pattern.

15. (Cancelled) The device according to claim 14, wherein the illumination source comprises a broadband light source in series with a narrow band optical filter.

16. (Cancelled) The device according to claim 14, wherein the time varying polarizer comprises a rotating linear polarizer.

17. (Cancelled) The device according to claim 14, wherein said optical filter comprises a broadband bandpass optical filter.

18. (Currently Amended) An ~~optical read-only~~ optically readable data storage medium, comprising an optically ~~transparent~~ readable substrate ~~and having~~ a data pattern ~~molded on a surface thereof, having and~~ a set of ~~random defects~~ optically readable characteristics formed by a process different than said data pattern, further comprising a recorded set hash of ~~defect identifications~~ descriptions of the optically readable characteristics associated therewith with the data storage medium, the data pattern and the optically readable characteristics being adapted to be readable by a common imaging system.

19. (Currently amended) The storage medium according to claim 18, wherein the data storage medium comprises a medium selected from the group consisting of a compact disk and a digital video disk ~~recorded set of defect identifications are imprinted as a serial data code on a surface of the medium.~~

20. (Currently amended) The storage medium according to claim 18, wherein the data pattern is molded into the data storage medium and the hash ~~recorded set of defect identifications~~ are formed as a pattern on a surface of the medium in a common plane with the molded data pattern.

21. (Currently Amended) A data storage disk, comprising a graphic-bearing surface, ~~an essentially unique code printed on the graphic bearing surface, and~~ an ascertainable variable dichroic pattern generated during a physical manufacturing process formed pattern on the disk, and a variable code representing the variable dichroic pattern stored on the data storage disk, wherein the ~~printed~~ variable code provides self authentication for the data storage disk based on the ascertainable variable dichroic non-deterministic pattern, the variable code and the ascertainable pattern being adapted to be readable by a common imaging system.

22. (Currently Amended) An encoded optical disk reader, comprising:

(a) an optical sensor having a common optical path for reading deterministic authentication data on the disk, a non-deterministic characteristic comprising a pattern of dichroic properties formed during a manufacturing process of the disk, and data to be read from the disk, the data pattern being distinct and separate from said pattern of non-deterministic characteristics;

(b) a processor non-deterministic characteristic analyzer for analyzing the pattern of non-deterministic characteristics; and

(c) ~~an authenticator,~~ authenticating the disk based on a correspondence of the an output of the non-deterministic characteristics characteristic analyzer and the deterministic authentication data.

23. (Currently Amended) The reader according to claim 22, wherein the optical sensor reads a time-varying signal ~~an optical encoding of the disk and the non-deterministic characteristic.~~

24. (Currently Amended) The reader according to claim 22, wherein the optical sensor is distinct from an optical sensor which reads an optical encoding of the disk while sharing the common optical path.

25. (Original) The reader according to claim 22, wherein the non-deterministic characteristic comprises a random reading defect of the disk.

26. (Original) The reader according to claim 22, wherein the non-deterministic characteristic comprises a dye pattern on the disk.

27. (Original) The reader according to claim 22, wherein the non-deterministic characteristic comprises a random distribution of fibers disposed on the disk.

28. (Currently Amended) The reader according to claim 22, wherein the ~~optical sensor reads a~~ deterministic authentication data comprises a cryptographic self-authentication code from the disk.

29. (Currently Amended) Authenticating sealing tape, comprising a an elongated carrier having an adhesive property, severable along its length, a seal tamper indicator providing indication of an attempted removal of said elongated carrier from a respective object to which it is adhered, a periodic plurality of unique identification deterministic identification portions of a portion of the tape, disposed along said tape, and an ascertainable non-deterministic characteristic of the tape in proximity to an the periodic-unique identification portion, wherein an authenticity of said tape may be verified by analyzing a correspondence of a deterministic identification portion with a proximate non-deterministic characteristic, and a tamper status of an object associated with said tape may be verified by analyzing said seal tamper indicator portion.

30. (Original) The authenticating sealing tape according to claim 29, wherein the ascertainable non-deterministic characteristic is a pattern selected from the group consisting of a random dye pattern and a random fiber pattern.

31. (New) The authenticating sealing tape according to claim 29, wherein said elongated carrier is provided wound on a spool from which it may be dispensed.

32. (New) The authenticating sealing tape according to claim 29, wherein said deterministic identification portions comprise a cryptographically-secure hash of a vector pattern of said proximate non-deterministic characteristic.

33. (New) The authenticating sealing tape according to claim 32, wherein said hash further is dependent on an identification of the deterministic identification portion.